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INDUSTRIAL EDUCATION¹

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First I must qualify to speak at all on this subject. I am put down on the programme as an editor, but a considerable part of my duties consists in managing certain departments of the Athenaeum Press. Printing is not so insignificant a matter as might be supposed; I am told the statistics of the industry in and around greater Boston show that one-tenth of the total industrial product of this section comes from the printing-press. This is one of the great centers of the printing industry in this country. There are—I was counting up casually the other day—I should think, about twelve skilled trades represented under one roof; that is to say, a very large proportion of the employees are skilled laborers; they have trades; they draw pretty good pay. This is an industry where the number of employees is comparatively small, but the character of the work is rather technical, and the workmen for the most part are skilled laborers—entirely different from another industry which you will perhaps hear more about later. It is a skilled as contrasted with an unskilled industry. I make this explanation because recent events have shown that it is very dangerous for a man to appear as an expert, and I want to qualify and show you just how much of an expert I claim to be. Beyond this practical experience in this kind of industry, I do not profess to be an expert at all; so in your mental or actual cross-examination please keep that in mind.

We talk of industrial education as though it were a new thing on the face of the earth. As a matter of fact, it is not. I suppose it is about the oldest thing there is. It is older than the sphinx, and more unchangeable. You can define education in almost as many ways as there are individuals and individual

¹ Stenographic report of an address at the dinner in connection with the Sixteenth Annual Meeting of the Harvard Teachers' Association, March 2, 1907.

points of view ; but, from one point of view, a working definition of education for our purposes is this: Education is the transmission of the acquired capacity and knowledge of one generation to its successor. Now, obviously that has always been going on in some form or other. There undoubtedly was a stage when education consisted of nothing more than unconscious observation and imitation. That is, in the Stone Age, or wherever there first were a child and a parent, the child naturally watched the parent, did whatever the parent found occasion to do, and unconsciously, probably, imitated. That was the first stage in education, and education at that stage was almost entirely industrial.

The oldest historical accounts that we have, all the knowledge we have of existing tribes of savages, so far as I know, shows education advanced beyond this stage; that there was some conscious effort, very crude perhaps, to transmit knowledge, capacity, and ability from one generation to another. In the history of education we find that very early in the progress of the race an enormous amount of attention was given to intellectual and spiritual development. Almost all of our classical treatises on education are concerned with the development of the intellectual, moral, and physical powers of the individual. Very much later, I should say very recently, we have taken up somewhat with commercial education. For the last ten years a good deal of attention has been given in our country to the development of this field; the development has gone on rapidly, and on the whole successfully.

Thus we began with the flower—because the mental and spiritual life is the flower of human existence—and for centuries we devoted all of our attention to the flower, to increasing its beauty and its fragrance. Very recently, if I may use the comparison, we have taken up the subject of the stem—the commercial life; and we are just beginning to think a little about the root, which is the foundation and source of all this development—namely, industrial education. For we have in this place, I think, the best of authority for saying and believing, what I for one do believe, that the best foundation for any sort of living is the ability to make an honest living; and without that foundation

the development of the flower of civilization is impossible, just as without industry which yields products that people want to exchange one with the other there is absolutely no commerce. So we have developed our flower in our intellectual and moral education; we have gone on to do a good deal for commercial education; while up to about the present time industrial education has remained, where it started in its prehistoric, ichthyosauric, paleolithic period—unconscious imitation.

I must speak in generalities; I cannot go into the details of particular schools and attempts made, sporadically, to solve this problem. In fact, I can do no more than tell you in a general way what is going on in my shop. How does a boy learn the one or more of a dozen trades practiced there? How do we get recruits? Well, we can get them, of course, by hiring the best men away from somebody else; that is the easiest way for us to solve the problem. But there is a limit to that sort of thing; and, as a matter of fact, boys come into the composing-room or the electrotyping-room to sweep the floor, etc., and take the brunt of the wrath of the superintendent and foreman when things go wrong. We get a boy with the necessary endurance. He knocks around a spell, and by and by he gets a chance to do some little job. Possibly in the electrotyping-room there is a machine which there is no one to run—somebody is sick, perhaps, or away—and the boy is asked: "Can you do that?" If he can, he gets a chance to do it. Then he gets a chance to do something else; and so on. He must, of course, be alert and looking for those chances.

Now, that is an expensive process for the boy, because it takes him a long time to learn mighty little. He gets some instruction, because, when he does a thing wrong, it is pointed out to him—firmly, perhaps kindly. But his instruction is certainly irregular and sporadic, even though it is forceful. Nobody has time to tell him very much. When it comes to the finer processes, a good deal depends on whether he gets to "stand in" with some good workman. If there is some good-natured workman who takes a liking to the boy, when he is not very busy he will show him something. That is just human nature. Some people like boys,

and some do not. A great deal depends on whether the man does or does not, as to how much the boy learns. A good deal depends on the boy. But the boy is a long while getting a little; and it is an expensive process to the manufacturer, because a shop is not a school.

I read a story the other day which may not be true, but it ought to be. There was a man who had sixty hands on looms (if there is anybody here who knows about looms, I will take something else). He wanted to double his output because of an increased demand, and doubled the number of hands. He was very much surprised to find the output decreased 50 per cent., because the skilled hands spent so much time in showing the new hands. Something like that would be true, I am sure, if any attempt was made to add suddenly to the output of our press by taking on a number of unskilled workers.

The main business of a shop is to turn out a finished product of some kind, and all are busy; they have not time to bother with the boy; they have not time to instruct him; they ought to be doing something else. The whole atmosphere is entirely opposed to the atmosphere of instruction; and such instruction as is given is very expensive; for the instructor is not an instructor, but a skilled workman whose time is all needed for the job in hand.

Not only is this an expensive process, both to the boy and to the manufacturer, but it is also an unsatisfactory process, because it does not produce a thoroughly trained, skilled workman. In our work we need those, and we find it difficult to get them. There have been times in my brief experience when, if there had been a place where we could send a promising man to learn certain things thoroughly, we should have sent him there at our own expense and paid him a salary to go. The difficulty of finding people who really understand the job in hand is a growing one; it is becoming not less, but greater.

Now the question comes: What can industrial education do? Will it be a good thing? It has got to be a good thing for both the employer and the employed, if it is a good thing at all. I think the difficulties which I have already stated in the actual training taking place in our shop show clearly that, if something

can be done to relieve us of this casual sort of training, and to relieve the boy of the very casual experience he gets, it will be a benefit to both. The best asset, on the whole, that a manufacturer has is the intelligent skill of interested workmen. And the more intelligent skill a workman has the more interested will he be in his work. If an industrial training of some kind can give the workman a deeper and more intelligent knowledge of his craft, whatever it is, he is going to be that much more valuable to himself and to his employer and to the world.

Every man, it seems to me, is bound to take an interest in his job, whatever it is. Not every man does, but most men do. The workingman as a class does not belong to the dumb-driven-cattle type at all, if he can help it. He does take an interest in his job; and I have been surprised again and again to see what a keen interest he takes in doing work well. They tell the story of two street-sweepers in New York City who were discussing their relative talents and abilities. Finally one of them said; "Now see here, Billy! I'll admit that when it comes to an ordinary plain job of sweeping, you can do it all right, but when it comes to a real artistic job, like that around an electric lamp post, you ain't in it with me, and you know it." If a man can take pride in sweeping a street well, he can take pride in almost anything. If a man is deprived of this joy and interest in his work, he is deprived, it seems to me, of one of the most valuable rights and privileges that belong or should belong to everyone. A man must spend most of his time—most of us have to—working; there is no doubt about that, whether we like it or not; and if we do not get any fun out of our work, through knowledge and interest and pride in it, we certainly lose a great deal which, if it can be preserved, ought to be preserved.

How and when and where is industrial education to be put into effect? I knew you would want me to tell you all about that. But I am very sorry to say that my time run out when I got that far in the preparation of this talk, and I shall have to leave the solution of that problem in the hands of the Industrial Commission. However, there are one or two suggestions I might make. Some shops have schools of their own. Is that a feasible plan?

Undoubtedly it is a plan that has produced good results in some instances. But it seems to me that that solution is entirely negligible, so far as any public consideration of the question is concerned. The possibility of the shops maintaining their own schools is altogether to be disregarded, for this reason: it is feasible only where large numbers are employed—very large numbers; and while a considerable portion of the industries of the country are represented by establishments that employ large numbers, still by far the greatest part of the work is done in relatively small shops, where the maintenance of a separate school would be practically impossible on account of the expense. Another objection is this, that in a shop like ours, where at least twelve different trades are represented, there are only a few men needed or to be trained at a time in each of those trades. You would have to have a training-school for twelve trades—some of the time nobody to train in some of them; and it would be a ruinously expensive thing—it could not be considered.

I should like to call your attention to the fact, probably well known to you, that in one branch of industrial education the public has already done a great deal; and that is in the fundamental industry of all—agriculture. Perhaps you know that agriculture is now a required subject in some eight or nine states—just as much required in the schools as are arithmetic and geography and reading and writing. The teachers have to pass an examination in it. This is very largely the case in the South. I think practically all the southern states have agriculture as a required subject. That is the great industry down there; and out in the western states agriculture is also coming to be required in the schools. The movement is gaining headway there in a way that is surprising to one who has not followed the matter up closely. They are going to have agricultural high schools all through that great Mississippi Valley; they are going to have agricultural high schools just as surely as they have great agricultural colleges in every state now. Agriculture is not our great industry in this part of the country, and obviously never will be. But we have great industries here, and we must, it seems to me, do for our industrial foundation what

the agricultural states are doing for the industry that lies at the basis of their prosperity.

It is a very complicated and difficult question, just what to do, and I will only say this, that for my part I am very glad to leave the question at this point in the hands of the commission, simply suggesting that, whatever is done, they must keep the work practical, close to the shop, to be of real value; and that we on our part must give them loyal, enthusiastic support in the great work they have undertaken. And I for one am willing to give them patient support. We have waited, according to our theology and our science, either four thousand or forty thousand or four million years, from the dawn of human life to the present time, for any particular interest in industrial education to show itself; and I do not think we ought to abuse the commission if they have not given us a fully perfected, absolutely complete plan by the time the next legislative session opens.